**Unit A: Maintaining Health**

 **Chapter 1: Circulation and Immunity**

* Circulatory System
	+ Cardiac Output Calculations
	+ Anatomy of the heart
		- Vena Cava, Right and left Atrium/Ventricle, pulmonary artery/vein, aorta
	+ Differences between veins, arteries and capillaries
	+ Blood flow through the heart
	+ Blood pressure
		- Systolic and diastolic
	+ Factors affecting heart rate
	+ Varicose veins – how are they formed?
	+ Components of blood
		- White blood cells, red blood cells and platelets
		- What percentage each make up in the blood
		- Shape of blood cells and what each type does
	+ The clotting process
		- Fibrin, scab, etc.
	+ Cardiovascular Diseases and disorders
		- Atherosclerosis, coronary heart disease, heart attack, stroke, aneurysm, septal heart defect
		- What is angina?
		- How plaque builds up in the heart and vessels
	+ Immune System
		- How does your body fight invaders?
		- How is disease spread?
			* Protists, fungi, viruses
		- Immune Response
			* Macrophages, antigens, antibodies, helper T Cells, Killer T Cells, Memory B Cells, Memory T Cells, Suppressor T Cell
		- Autoimmune disease
* **Chapter 2: Genetics**
	+ Chromosomes
		- Where are they located?
		- Karyotyping
			* What do genetic disorders look like?
			* How do you tell if something is male or female?
			* What does Down syndrome look like?
		- Mitosis and Meiosis
		- Fertilization
		- Selective breeding
	+ Breeding
		- Differences between cross pollination and self-pollination
	+ Genetics
		- Dominant vs. Recessive Genes
		- Punnett Squares
		- Homozygous vs. Heterozygous
		- Genotype vs. Phenotype
		- Sex linked traits
		- Incomplete Dominance
	+ DNA
		- Structure of DNA
			* Cytosine, Guanine, Adenine and Thymine
		- Protein Synthesis
	+ Mutations
		- Cystic Fibrosis
		- Point Mutations
		- Tracing genetic disease
			* Pedigree Charts
	+ Gene Therapy and Technologies for “curing” genetic disorders